

# METHYLMERCURY IN SPORT FISH AND ADVERSE REPRODUCTIVE OUTCOMES IN SOUTH CAROLINA

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**Background and Aims:** Sport and subsistence fishing are common in South Carolina (SC, USA), although there is limited information on the potential health effects of these activities. Mercury is a neurodevelopmental toxin with widespread distribution in aquatic ecosystems. Fish consumption advisories for methylmercury (MeHg) have been issued for many SC rivers.

**Methods:** Residential locations of live births from 1995 to 2005 (birth certificates, SC Vital Statistics Registry) were geocoded and statewide sportfish MeHg biomonitoring data were spatially interpolated via kriging to estimate MeHg concentrations at each location. Generalized estimating equations were used to test the hypothesis that risk of low birth weight (LBW, <2,500 grams) was greater among women living in areas with elevated MeHg in fish, after adjustment for maternal age, race, education, smoking, prenatal care, and parity. Separate analyses evaluated the proximity of each residence to rivers with MeHg fish consumption advisories (within or beyond 8 kilometers).

**Results:** There were 362,580 live births available for analysis (statewide LBW rate=7%). LBW cases were more likely to reside in residences in the upper quartile of predicted MeHg (odds ratio [OR]=1.04; 95% confidence interval [CI]: 1.00-1.09) or within 8 kilometers of a river with a 'do not eat' fish advisory (1.05; 1.00-1.11) compared to the lowest quartile, or to rivers without fish consumption restrictions, respectively. In general, stronger associations between low birth weight and elevated MeHg were observed among African compared to European American mothers. The monthly average number of sport fish meals among African American women in one region with elevated fish MeHg was five times greater than European American women ( $5 \pm 8$  vs.  $1 \pm 2$ , respectively).

**Conclusions:** This analysis suggests a need for more detailed, individual-level studies to assess reproductive health risks related to MeHg exposure from sport fish consumption in SC.